

Book Reviews - Environment / Comptes rendus - Environnement

***Environment for Science: A History of Policy for Science in Environment Canada.* By Philip Enros. Toronto: Philip Enros, 2013. xi + 255 p., notes, ill., index. ISBN 978-0-99207-040-3, \$32.95**

Matthew Wallace

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Environment for Science: A History of Policy for Science in Environment Canada. By Philip Enros. Toronto: Philip Enros, 2013. xi + 255 p., notes, ill., index. ISBN 978-0-99207-040-3, \$32.95.

It is trivial for historians of science to say that scientists are not the only protagonists and that the social, cultural and institutional contexts of knowledge production must also take centre stage in the history of science. But few have actually shone the light on these contexts, rather than the scientific practices, outputs and impacts themselves. This is precisely what Philip Enros aims to do in *Environment for Science: A History of Policy for Science in Environment Canada* and is one of reasons the book is unusual in the historiography of contemporary science. Beyond simple “inputs” like budgets and personnel lie a complex maze of characters and organizations that help decide what type of research gets done, how it gets used, and what impact it has both on the scientific and non-scientific communities.

“Policy for science”—a term Enros uses to avoid confusion arising from the all-too-common misuse of “science policy”—is most important in a governmental setting, although some might argue that the increasingly large science management apparatus of universities is just as present, yet even more under-explored by historians and sociologists of science. Recent political interest in government science in Canada concerning the communication practices of scientists, or the provision of scientific advice to inform policy, for example, highlight the importance of focusing how science is managed. While these two examples are not the central objects of Enros’ enquiry, they do beg the broader questions of origins, nature and impacts of science management at a “science-based department” like Environment Canada since its inception in 1971. It is a particularly fascinating case study in that science, unlike environmental protection and conservation, for example is not the main preoccupation of the department. Despite this, the Department’s research has played a central role in Canada’s science landscape in several key areas of research, such as weather prediction, climate change, wildlife, water and toxic substances, to name a few.

Enros’ synchronous account explores various themes such as infrastructure, international collaborations and coordination with other federal departments. While some of these themes describe challenges specific to Environment Canada (given its mandate, structure, etc.), others speak to the

broader context of federal science. The archival sources that underpin the book are extensive, drawing primarily on reports, memoranda and meeting minutes. The result is a detailed account that is complete and well-documented.

As Enros states, “policy work in government is pragmatic, like politics it is art of the possible. It is essentially a process, consisting of meetings, persuasion and the exercise of authority” (227). Though the author uses plain language throughout and takes the time to explain each of the myriad of initiatives and structures, some readers might occasionally feel lost in a sea of such bureaucratic “processes”. Some exposure to the hierarchies, continuous reorganizations and basic mechanisms of a large government bureaucracy is almost a prerequisite to fully appreciating this book. In addition, any reader expecting monumental successes, failures or “eureka” moments driven by scientists or politicians might be disappointed to find a series of ebbs and flows in budgets, enthusiasm among senior decision-makers and more or less effective committees. At times, the book makes it painfully clear how the same key issues around organizing science have remained partially unresolved over forty years, as decision-makers repeatedly fail to learn lessons of their predecessors or avoid tackling root causes of a problem. But this is precisely what makes the book unique, as it paints a detailed picture of how science is managed by reconstructing and making sense a complex set of ideas, discussions and decisions arising involving hundreds of civil servants, each with their own ambitions, perspectives and organizational mandates.

Admittedly, historians of science may be disappointed that there is little in the way of theorization or critical analysis to help frame the account. While hints and insights are provided throughout, it lacks a certain reflexivity or an overarching framework with which to probe the bureaucratic processes and challenge some of the data. For example, where does the power actually reside and how is it negotiated, what types of narratives have been constructed around science management and how effective were they? Indeed, Enros admits that those interested in public administration, either as practitioners or scholars, may get the most out of the book. But just as the “science of science policy” is increasingly recognized as a rich and complex field of study, historians of science will appreciate the empirical evidence that reveals the subtleties of how science is managed. At the risk of taking a step away from the laboratory

and into a tangled, unglamorous, and intangible world of meetings and memos, Enros shows that the history of science policy is a critical part of understanding science.

Matthew Wallace, Canada Foundation for Innovation

Allied Power: Mobilizing Hydro-Electricity During Canada's Second World War. By Matthew Evenden. Toronto: University of Toronto Press, 2015. xii + 273 p., notes, ill., index. ISBN 978-1-44262-625-6, \$32.95.

In 1939, Canada was an energy oddity in the Western world. 98% of Canada's electricity was generated by the flow of moving water and by the end of the Second World War, according to Matthew Evenden, "Canada had become a hydro-electric superpower" (4). In thinking about energy, Evenden's *Allied Power* reveals new insights into Canada's contributions to the war effort and the substantial role that hydro-electric power played in waging war.

The narrative begins with the establishment of "power control," the federal wartime agency responsible for overseeing planning for the development and conservation of hydro-electric power. Under the leadership of Herbert J. Symington, a politically-connected Montreal lawyer with some experience in the hydro business, power control coordinated numerous projects across Canada to both expand and ration the hydro-electric power supply for the war effort. *Allied Power* examines regional case studies of the work of power control in four provinces, Quebec, Ontario, Alberta, and British Columbia.

Evenden's regional survey begins in Quebec. By 1939, Quebec was the largest producer of hydro-electric power in Canada and thus it was the focal point of much of Symington's work with power control. The abundance hydro-power resources in that province facilitated the development of significant aluminum-production capacity. In a war that was so dependent on air power, aluminum production was critical. Evenden explores the diplomacy between Canada and the US in negotiating agreements concerning aluminum production and the expansion of hydro-power capacity to support Alcan's operations on the Saguenay River. Aluminum was so central to the manufacturing of aircraft (and thus central to wartime production planning) that it was the only commodity specifically detailed in the 1942 Hyde Park declaration. The construction of the

Shipsaw power project was the largest hydro-electric power project completed in Canada during the Second World War.

Evenden follows this analysis of Quebec with an examination of the second-most abundant province when it came to hydro power, Ontario. Here the story was one of deferred ambitions. Difficulties in Canada-US diplomacy delayed any major hydro-electric power expansion on the Great Lakes-St. Lawrence system until after the war (except diversions on the Ogoki River and Long Lac). And efforts to develop the Ottawa River resulted in hard-won agreements between Ontario and Quebec, but no dam construction until after 1945. Instead of expanding hydro power in Ontario, power control sought to conserve and divert that power to wartime industries. In one of the most fascinating chapters of the book, Evenden examines wartime electricity conservation programs in Ontario and Quebec where power control targeted ordinary consumers (especially women), playing upon patriotic anxieties to encourage voluntary reduction of power consumption. The purpose, however, was not to reduce overall power consumption in Canada; it was a program to divert power to wartime manufacturing. The collection of posters that Evenden includes in his analysis reveals power control's various persuasive strategies.

The final two chapters consider power projects in Western Canada, one on the Bow River and another on the Kootenay. Calgary Power stirred controversy by opportunistically seizing on the wartime emergency to fulfill its long-held ambition to transform Lake Minnewanka into a hydro-electric storage reservoir. Prior to the war, park advocates successfully resisted such industrial development within the boundaries of Banff National Park. Under the pretense of the need to supply power to a Calgary-based ammonium nitrate plant, Calgary Power won approval to build the reservoir in Banff. In Trail, BC, the Consolidated Mining and Smelting Company required additional hydro power for its smelters to complete war contracts. Here, once again, Canadian and American diplomacy facilitated the construction of the Brilliant Dam on the Kootenay River to meet the wartime demand.

Evenden's book tells a national story of power policy and development, but one that is by necessity regional and international in its approach. To understand the unprecedented expansion of federal control over hydro-electric development in Canada during the Second